



## 1-Bromopropane

### Key Points



#### 1-Bromopropane

- *Reasonably anticipated to be a human carcinogen*
- *Colorless liquid used as a cleaning solvent and in spray adhesives*
- *Touted as a green chemical alternative*
- *Widely used in commercial and industrial settings*
- *No federal exposure regulations*

#### Report on Carcinogens Status

*Reasonably anticipated to be a human carcinogen*

#### What is 1-bromopropane?

1-Bromopropane is a colorless to pale-yellow liquid used as a solvent in many commercial industries. It is volatile and has a strong characteristic odor. 1-Bromopropane is also called n-propyl bromide.

#### How is 1-bromopropane used?

1-Bromopropane is used as a cleaner for optics, electronics, and metals and as a solvent for aerosol-applied adhesives, such as those used in foam cushion manufacturing. It is also used in dry cleaning and solvent sprays for aircraft maintenance, asphalt production, and synthetic fiber manufacturing.

In recent years, 1-bromopropane use has increased, as a result of new industrial and commercial applications as a substitute for ozone-depleting chemicals or suspected carcinogens. For example, 1-bromopropane has been used to replace perchloroethylene, a health and environmental hazard, in dry cleaning.

#### How are people exposed to 1-bromopropane?

People are exposed through inhalation or contact by skin at workplaces where 1-bromopropane is produced or used. Workers in certain occupations, such as sprayers in the adhesive industry and workers at polyurethane foam furniture cushion manufacturing facilities, are potentially exposed to much higher levels of 1-bromopropane than the general population. Workers in the foam adhesives industry are exposed to 1-bromopropane at levels that are similar to those that caused cancer in experimental animals.

#### What evidence is there that 1-bromopropane causes cancer?

##### *Human Studies*

No human studies were identified that evaluated the relationship between human cancer and exposure specifically to 1-bromopropane.

##### *Animal Studies*

In rodents, inhalation exposure to 1-bromopropane caused tumors in several different organs, including the skin, lungs, and large intestine.

##### *Mechanistic Studies*

Exactly how 1-bromopropane causes cancer is not fully known. However, exposure to 1-bromopropane has been shown to cause biological changes that relate to cancer development, including DNA damage and mutations, changes to the body's immune system, antioxidant depletion, and buildup of toxic reactive oxygen species in the body.

#### What are some things I can do to reduce exposure to 1-bromopropane?

Workers and employers should practice good occupational health behaviors. This may include wearing protective clothing, respirators, and gloves, and reducing the time a worker is exposed to the chemical. Work places should be well ventilated. The risk of adverse health effects to workers from 1-bromopropane exposure depends on several factors, including its concentration in the air they breathe, how much comes in contact with skin, and duration of exposure.

#### Where do I go for more information?

National Toxicology Program

<http://ntp.niehs.nih.gov/go/37896>

Environmental Protection Agency

<http://www.epa.gov/ozone/snap/solvents/2007nPBRsQA.html>

National Institute for

Occupational Safety and Health

<http://www.cdc.gov/niosh/docs/2013-150/>

Occupational Safety and Health Administration

[https://www.osha.gov/dts/hazardalerts/1bromopropane\\_hazard\\_alert.html](https://www.osha.gov/dts/hazardalerts/1bromopropane_hazard_alert.html)



The Report on Carcinogens, Thirteenth Edition, is prepared by the National Toxicology Program, an interagency group coordinated by the U.S. Department of Health and Human Services. The report identifies agents, substances, mixtures, or exposures in two categories: *known to be a human carcinogen* and *reasonably anticipated to be a human carcinogen*. **The full Report on Carcinogens is available at** <http://ntp.niehs.nih.gov/go/roc13>.

